IN THE CLAIMS

Following is a complete set of claims as amended with this Response.

1. (Currently Amended) A method for removing effects of gain and phase mismatch in amplification branches of a linear amplification using nonlinear components (LINC) system, comprising:

~~receiving an input signal;~~

receiving calibration signals;

calculating a relative phase and gain difference in the amplification branches, generating a look-up table for phasing component generation;

receiving an input signal;

generating phasing components; and

controlling separation of the input signal into a plurality of branch signals of different but constant envelopes by appropriately applying the phasing components to the amplification branches, such that when the branch signals are recombined, the combined signal substantially replicates the input signal.

2. (Currently Amended) The method of claim 1, wherein said calculating a relative phase and gain difference includes

modulating and sending two calibration signals and demodulating the ~~training~~ signals using a receiver.

3. (Currently Amended) The method of claim 2, wherein said modulating and sending two calibration signals and demodulating the signals includes:

~~calculating reference vectors of the branch signals, where each reference vector accounts for total gain and phase shift of a corresponding branch signal when no phase shift is applied to a phase modulator in the corresponding branch~~

generating two sets of branch signals, the first set of branch signals $S_1(t)=A$ and $S_2(t)=Be^{jX}$ forming the first transmission signal and the second set of branch signals $S_1(t)=A$ and $S^2(t)=-Be^{jX}$ forming the second transmission signal, where A and B are the reference vectors and X can be any constant selected in the modulation process; and,

using a receiver to demodulate the first received signal $R_1=G(A+Be^{jX})$ and the second received signal $R_2=G(A-Be^{jX})$ and determine A and B up to a constant complex scale by processing the two received signals with $(R_1+R_2)/2$ and $(R_1-R_2)/(2e^{jX})$, where

G is a complex number representing the gain or attenuation of the receiving path.

4. (Currently Amended) The method of claim 1, wherein said generating a look-up table for phasing component generation ~~phasing components~~ includes

configuring ~~an~~ a generalized elliptic curve based on the calculated reference vectors *A* and *B* and establishing one-to-one mapping between the points on the curve and possible values of the input signal's magnitude.

5. (Currently Amended) The method of claim ~~4~~ 1 wherein said generating phasing components includes

obtaining a point on the generalized elliptic curve corresponding to a vector having same magnitude as the input signal.

6. (Currently Amended) The method of claim 5, wherein said obtaining a point on the elliptic curve includes

searching for an appropriate value for φ ~~from~~ such that $|S(t)| = |(A + B) \cdot cos\varphi + j(B - A) \cdot sin\varphi|$, where $|\cdot|$ stands for the magnitude of the argument, ~~$|S(t)|$~~ $S(t)$ is the ~~magnitude of the~~ input signal, and *A* and *B* are the reference vectors.

7. (Currently Amended) The method of claim ~~5~~ 4, wherein said ~~obtaining a point on the elliptic curve~~ generating a look-up table for phasing component generation includes

~~generating a lookup table having a corresponding relationship between magnitude of the input signal and the point on the elliptic curve~~

tabulating the parameter φ as a function of any possible values of the input signal's magnitude $|S(t)|$, such that

$$|S(t)| = |(A + B) \cdot \cos\varphi + j(B - A) \cdot \sin\varphi|.$$

8. (Currently Amended) The method of claim ~~7~~ 5, wherein said obtaining a point on the elliptic curve includes

searching the lookup table for the φ related to the point on the elliptic curve that corresponds to a vector having the ~~desired~~ same magnitude of the input signal.

9. (Currently Amended) The method of claim 4, wherein said generating ~~phasing components~~ a lookup table for phasing component generation includes

calculating a phase skew ~~(Δ),~~ which is ~~a~~ the phase difference between ~~a vector ending at a point on the elliptic curve and a sum vector that is a sum of the reference vectors~~ Z_3 and Z_1, where $Z_3 = (A + B) \cdot \cos\varphi + j(B - A) \cdot \sin\varphi$ is a point on the

generalized elliptic curve corresponding to a parameter φ and $Z_1 = (B + A)$, and

tabulating the phase skew Δ as a function of any possible values of φ or, equivalently, any possible values of the input signal's magnitude $|S(t)|$.

10. (Currently Amended) The method of claim ~~9~~ 1 wherein said generating phasing components includes

~~generating a look-up table having a corresponding relationship between a phase skew (Δ) and a point on the elliptic curve~~ searching the look-up table for the corresponding φ and Δ given an input signal's magnitude $|S(t)|$.

11. (Currently Amended) The method of claim 1, wherein said controlling separation of the input signal into a plurality of branch signals includes

applying appropriate phasing components $\theta(t) - \Delta - \varphi$ and $\theta(t) - \Delta + \varphi$ to phase modulators in amplification branches to generate at least following branch signals $S_1(t) = A \cdot e^{j(\theta(t) - \Delta - \varphi)}$ and $S_2(t) = B \cdot e^{j(\theta(t) - \Delta + \varphi)}$, where $S_1(t)$ is a first branch signal and $S_2(t)$ is a second branch signal, A and B are reference vectors, $\theta(t)$ is phase of the input signal $S(t) = |S(t)|e^{j\theta(t)}$, Δ is the corresponding phase skew, Δ and φ ~~corresponds to the~~ are associated with a

point on the generalized elliptic curve that relates a vector having the same magnitude as the input signal.

12. (Currently Amended) The method of claim 11, wherein said controlling separation of the input signal into a plurality of branch signals includes

approximating $S(t) = |S(t)|e^{j\theta}$ by $V_{min} \cdot e^{j\theta}$ with a corresponding φ achieving the minimum when $|S(t)| < V_{min} = \min_{0 \le \varphi \le \pi/2} \{|(A + B) \cdot \cos\varphi + j(B - A) \cdot \sin\varphi|\}$, where V_{min} defines the radius of a dead circle within which an input signal may only be approximated with a two-branch LINC system with branch mismatches.

13. (Original) The method of claim 12, where said controlling separation of the input signal into a plurality of branch signals includes

providing at least three branch signals to avoid the dead circle.

14. (Original) The method of claim 13, where said providing at least three branch signals includes

providing a third branch signal with a vector whose magnitude is larger than the radius of the dead circle.

15. (Currently Amended) The method of claim 14, where said providing a third branch signal moves the dead circle away from a null position by forming a new input signal with magnitude larger than the radius of the dead circle.

Claims 16-24 (Canceled)